

long exhaust-pipe. It is also more costly to install, because of the supporting staging and the long lengths of piping. Its main advantage, however, lies in its capacity for draining freely without risk of flooding, and there may also be a certain amount of saving of pumping power with the barometric type under favourable conditions.

What is known as the "ejector" condenser is illustrated in fig. 4, as made by Ledward & Beckett, Ltd. The injection water is supplied at the top

Fig. 4.—Ejector Condenser with a head of about 15 ft., and acquires a considerable velocity in passing through the cone. If this head of water is not naturally available, usually a centrifugal pump is used to produce it. The exhaust steam passes through a large number of small inclined nozzles at a considerable velocity, and meets with the injection water flowing through the cone, and is thereby condensed. The momentum, acquired by the mixture is sufficient to discharge the water against atmospheric pressure even when a high vacuum is produced in the exhaust steam connection. This requires an expanding nozzle or cone, as shown at the discharge end. Under suitable conditions the air which is mixed with the steam gets entangled in the water at the moment of condensation of the steam, and is discharged along with the water. So long as the amount of air to be dealt with is not abnormal the ejector condenser is capable of producing a fairly good vacuum, but with an unusual or abnormal air leakage the vacuum is apt to fall off considerably, and more or less erratic conditions are set up.

The illustration in fig. 5 shows a modern arrangement (Westinghouse) of simple jet condenser, operating on lines similar in principle to the ejector condenser, except that the injection water passes through a Leblanc rotary pump. This type of pump is more particularly described on p. 242; but, briefly stated, the injection water in passing through the impeller is made to travel at a high velocity along the cones shown, carrying the air with it to the outlet, and compressing it sufficiently to discharge to the atmosphere. This type of pump is always arranged to lift the injection water, and therefore some arrangement is necessary for priming the pump with water. A steam starting ejector is arranged at c for this purpose, though if a supply of water